

## A CONSTANT ON-TIME CONTROLLER FOR A BUCK CONVERTER

### ABSTRACT OF THE DISCLOSURE

A constant ON-time controller for a buck converter utilizes dual symmetrical ramps. The ramps may be generated artificially or by sensing the voltage across a sense resistor in the output. The ramp may also be generated by sensing the voltage across the "ON" resistance of the low side FET in the switching regulator. A modified output voltage has one of the ramps superimposed and a modified reference voltage has the other ramp superimposed. The modified output voltage and the modified reference voltage are compared to determine when to start the ON-time of the buck converter. The dual ramps reduce noise susceptibility. The ON-time is stopped in response to charging a capacitor with the regulator input voltage. An offset may also be generated representing the difference between the average output voltage and the reference voltage. The offset is used to generate a modified reference to compensate for the offset.

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